

AMENDMENTS TO THE CLAIMS

1.-6. (Canceled)

7. (Currently Amended) A method of imaging features onto a wafer comprising:

- establishing a grid with m rows and n columns having grid pitches;
- arranging a plurality of real features on the grid;
- arranging a plurality of assist features on the grid points;
- ~~creating two masks, the first mask including a first subset of the plurality of real features and a first subset of the plurality of assist features, the second mask containing a second subset of the plurality of real features and a second subset of the plurality of assist features, the assist features being sized such that they do not print but nevertheless create a mask spectrum that allows an illumination to be optimized;~~
- grouping a first subset of features comprising real and assist features located in odd-number rows while in odd-number columns;
- grouping a second subset of features comprising real and assist features located in odd-number rows while in even-number columns;
- grouping a third subset of features comprising real and assist features located in even-number rows while in odd-number columns;
- grouping a forth subset of features comprising real and assist features located in even-number rows while in even-number columns; and
- creating two masks, the first mask including the first and the forth subsets of features, the second mask containing the second and the third subsets of features,
and
- exposing the two masks sequentially and imaging the real features onto the wafer.

8. (Canceled)

9. (Amended) The method of imaging features according to claim 7, wherein grid pitches, p_x and p_y , in both row direction and column direction are selected to minimize circuit area.

10. (Original) The method of imaging features according to claim 7, wherein the assist features are arranged on the grid points that do not have a real feature.

11. (Canceled)

12. (Original) The method of imaging features onto a wafer according to claim 11, wherein a distance between two adjacent real features is no less than the minimum pitch of single-exposure lithography.

13.-14. (Canceled)

15. (Currently Amended) The lithography method according to claim 14, wherein a diagonal distance between two adjacent features (real or assist features) no less than the minimum pitch of single-exposure lithography ~~is where is the pitch between two adjacent features (real or assist features) in an x direction and is the pitch between two adjacent features (real or assist features) in a perpendicular direction of an x direction.~~

16. (Withdrawn and Currently Amended) A mask set for imaging a die comprising:

a grid with m rows and n columns;

a plurality of real features on the grid;

a plurality of assist features on the grid points, the assist features being sized such that they do not print but nevertheless create a mask spectrum that allows an illumination to be optimized;

a first subset of features comprising real and assist features located in odd-number rows while in odd-number columns;

a second subset of features comprising real and assist features located in odd-number rows while in even-number columns;

a third subset of features comprising real and assist features located in even-number rows while in odd-number columns;

a fourth subset of features comprising real and assist features located in even-number rows while in even-number columns;

a first mask, the first masking having the first and the fourth subsets ~~a first set of real features and a first set of assist features;~~ and

a second mask having the second and the third subsets ~~a second set of real features and a second set of assist features,~~

wherein two adjacent features (real or assist features) in the first or second mask are spaced at no less than a minimum pitch for single-exposure lithography.

17 (Withdrawn and Currently Amended) The mask set according to claim 16, wherein the real features on the first mask and the real features on the second mask ~~first set of real features and the second set of real features~~ create a set of real features for a single die.

18. (Withdrawn and Currently Amended) A mask set for imaging a die according to claim 16, wherein the ~~first set of real features is distinct from the second set of real features~~ on the first mask distinct from the real features on the second mask.

19. (Withdrawn and Currently Amended) A mask set for imaging a die according to claim 16, wherein the ~~first set of assist~~ features on the first mask distinct from the assist features on the second mask ~~contacts is distinct from the second set of assist contacts.~~

20. (Withdrawn and Currently Amended) The mask set for imaging a die according to claim 16, wherein a diagonal distance between two neighboring features (real or assist features) no less than the minimum pitch of single-exposure lithography is ~~where is the pitch between two adjacent features (real or assist features) in an x direction and is the pitch between two adjacent features (real or assist features) in the perpendicular direction of an x direction.~~

21.-32. (Canceled)